WORKERS HEALTH & SAFETY CENTRE
THE WAY THAT WORKS

CAW TCA
CANADA

On the cover

Art featured on our cover was generously donated by the very talented Canadian illustrator, Tracy Walker. This is the third year Tracy has supported our Earth Day in the schools project with her work. Tracy studied both fine art and illustration and worked as a book designer before settling on a career as an illustrator. A few years ago the Workers Health and Safety Centre commissioned Tracy to paint a piece of art that would give visual expression to our purpose statement. Entitled, *One World, One Voice* this piece has struck a chord with all who have viewed it.

Similarly, we hope Tracy's art chosen for this cover also strikes a chord with you. We share it to remind you of water's unique vulnerability, its connection to life, and its future, which shines through advocates working to conserve and preserve it. If you haven't joined the journey for water, for life, what will it take? Read on. Taking our planet from a world of water worries to a world of water works will be no easy task, but as you will see it is both necessary *and* possible, especially when our numbers grow from the few to us all.

Between the cover

Some 40 per cent of all trees cut down are used to create paper. And since 1937, about half of the Earth's forests have been sacrificed to the paper pursuit. Inside pages for this booklet were produced by workers at Domtar, from 100 per cent recycled post-consumer waste. Known as *Sandpiper,* no harmful chlorine was used to bleach this paper stock. Also the ink was not removed from the paper pulp, because that would just create more potentially dangerous waste. So this booklet itself is another example of what we call "Green Jobs" — jobs that are safer and healthier for workers, their families, their communities and you.

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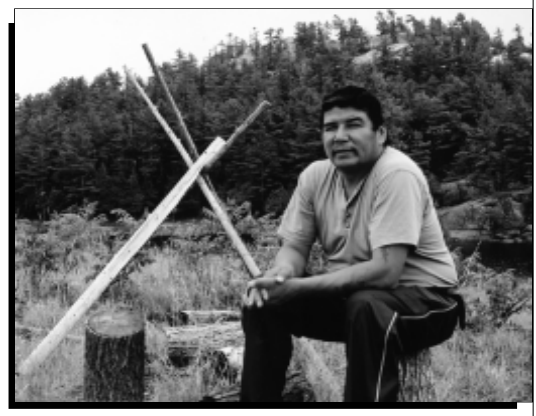
Our journey for life

From Water Worries to Water Works

> We don't own the water; we are part of it, and it is a part of us. Our job is to take care of it, as it takes care of us.
>
> — *Eco-Fun*, David Suzuki and Kathy Vanderlinden, 2001

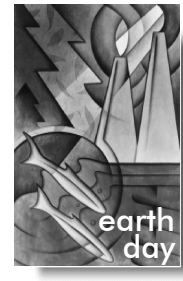
A river runs through us *and* around us. Our body is approximately 65 per cent water. About 80 per cent of the Earth's surface is also covered with water. Moreover, water constantly circulates our planet. As such our connections with water are many. We drink water, we make things with water and grow food with water, we play in water, we conduct religious ceremonies with water, and last, but not least, we enjoy its beauty. Consequently, many have observed, "Water is life."



Here in Canada we enjoy the added wonder of water as snow and ice. Blessed with one-fifth the world's fresh water and surrounded by seas in three directions, our nation's culture and history is also 'steeped' in water. Beliefs of aboriginal peoples reflect our deep dependence on water. They consider sacred many places close to water. Our vast networks of rivers and lakes helped reveal Canada to its first European explorers. First European settlements, their families and farms, arranged themselves along bodies of water like the St. Lawrence and Red Rivers. Everyone understood the necessity of accessible fresh water.

Today we seemingly yet understand this. People's health *and* their wealth are tied to this liquid life force. We also continue to cluster our communities and our economies around our major bodies of water. Thus it is little wonder that although Canadian's disagree on much, we universally and consistently oppose any scheme aimed at international bulk exports of our water.

Unfortunately, when it comes to our own use of Canada's natural heritage, we are not as water wise. The **Sydney Tar Ponds** is perhaps the most notorious example of water mismanagement in Canada. Bordering the homes, schools and playgrounds of many, they represent the toxic legacy of 100 years of steelmaking. Sydney's coke ovens site is polluted to a depth of 24 metres and contains uncalculated amounts of deadly polycyclic aromatic hydrocarbons (PAHs are the largest group of cancer-causing chemicals in the world.) plus heavy toxic metals. Meantime, the estuary next to this site contains 700,000 tons of toxic sludge, reported to be "a witch's brew of carcinogenic



chemicals 35 times worse than New York's infamous Love Canal." Both sites contaminate the springs, streams, ditches, wells, and *home basements* of this harbour town. Fortunately, not all communities are faced with such overwhelming threats. Nonetheless, as we will see, there is much we need to confront.

As citizens, worker representatives, and health, safety and environmental advocates we at the Canadian Auto Workers Union (CAW) and Workers Health and Safety Centre are highly concerned with the consequences of our nation's current water practices. As we share our knowledge and experience with you, we hope to encourage you to join us in our journey towards sustainable development, one that will take us from a world of water worries to a world of water works. In other words, we hope to inspire you to support our pursuit of an economy and society that works for water — to conserve it and preserve it — because water works for us, or because, like we began, and like our cover title says, "Life is sacred. Water is life."

Water worries

Water use reduction advisories, beach closings, boil water alerts, fish consumption limits and birth defects or cancer diagnosis in those we love — such are the disturbing signs of our time. The first of these signs speaks volumes about the value we place on water. We say water is precious, but water metre readings and dry wells contradict our words. Then again, if we think about it, all these signs contradict the supposed value we place on water.

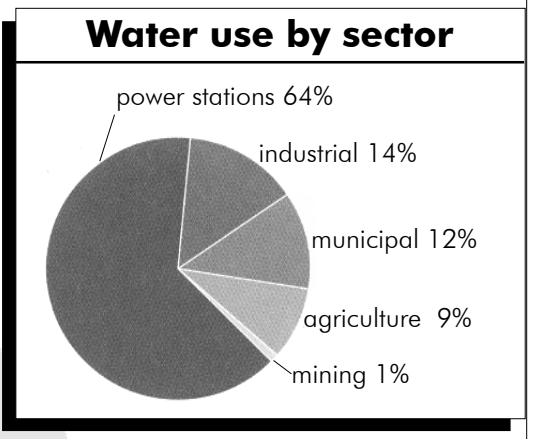
The second and third of these signs — beach closings and boil water alerts — are largely attributable to our aging sewage systems' inability to deal with human and increasingly animal wastes. As a society we are failing to collect and spend tax dollars necessary to build or maintain our municipal water treatment infrastructures. We are also failing to insist on alternatives to, or regulation of, large factory farms that often discharge animal fecal matter to our waterways.

Finally, the fourth and fifth of these signs — fish consumption limits and worse yet, human health problems — says more about the hazardous, man-made material choices we are implementing in our homes and in our workplaces. While we will explore all these issues and others, we will emphasize the need for alternatives to our current material choices. By their very definition man-made materials begin in the workplace, places with which CAW members and Workers Centre representatives are all too familiar.

Water use

Compared to others worldwide Canadians are second only to Americans when it comes to water consumption. Americans average about 400 litres per day for personal use, while Canadians use around 350 litres per day. Much of this water is used thoughtlessly — flushed down the toilet or soaked into lawns. In fact, lawn watering can account for 50 to 75 per cent of all municipally treated water used in the summer.

On the Prairies irrigation is also the largest consumer of water. But a Canada-wide sectoral breakdown looks much different. By far and away, the single largest group of water users are power stations — 64 per cent — followed by users in the industrial, municipal, agricultural and mining sectors.



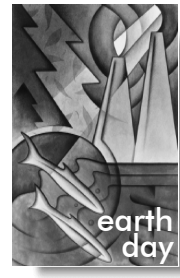
One of three coal-fired power-generating plants on Alberta's **Lake Wabamun** is a prototypical water guzzler. Approximately 70 kilometres west of Edmonton, the lake, whose name is a Cree word, meaning mirror, is anything but clear these days. Significant chemical pollution concerns aside though, this plant built in 1956 diverts groundwater that would normally supply the lake. Consequently, the power plant has contributed to a 60-centimetre decline in Lake Wabamun water levels.

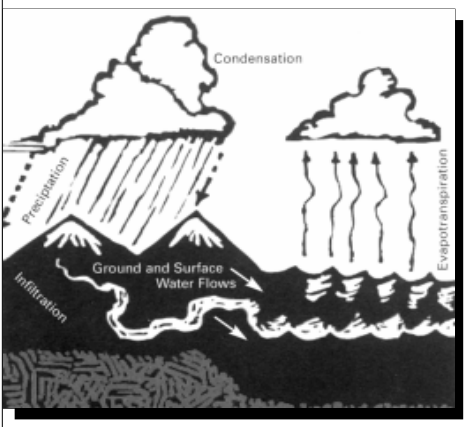
Then again, lake levels are low throughout the province of Alberta. Many also lay these concerns at the feet of the oil industry. In Alberta over 204 billion litres of water are pumped into oil wells every year. The water apparently helps increase well pressure necessary for production. But as Maude Barlow and Tony Clarke observe in their landmark book on water entitled, *Blue Gold*: "This is enough fresh water to supply 70 thousand residents of Red Deer for 20 years." It's also important to remember water injected into oil wells is removed permanently from the water cycle.

Water myths

This rate of consumption seems to say we buy into the myth of water abundance. But less than half of one per cent of all water on this planet can be used by life outside the oceans. The rest is seawater or frozen in polar ice caps.

Here in Canada, although we enjoy one-fifth the world's fresh water, unless we plan on draining our sources of fresh water dry, (a mistake a few have made with dire consequences) only renewable water supplied by the **natural water cycle** is ours to use. This cycle is the series of transformations that occur in the circulation of water from the atmosphere onto the surface and into the subsurface regions of the Earth, and then back from the surface to the atmosphere. Precipitation becomes surface water, soil moisture and groundwater. Groundwater circulates back to the surface, and from the surface all water returns to the atmosphere through evaporation and transpiration. So for instance, only about one per cent of the water in the Great Lakes is





replaced every year through the water cycle. The other 99 per cent is a one-time gift left by melting glaciers about twelve thousand years ago.

In this light then, after calculating that more than half of Canadian yearly river flow goes into the Arctic, we are left with only 2.6 per cent of the world's fresh water to supply our populated southern region. "That is the number we should have in mind for the current debates on water export," says John B. Sprague, a reputed government scientist, professor and consultant.

World water crisis

Fueling the debates to which Sprague refers is a worldwide water crisis. Our ever-burgeoning human population, water demands that are increasing at twice the speed, and water distributed unevenly among the Earth's existing inhabitants, makes it easy to see why many believe water will be the oil of this century. "Wars of the twenty-first century will be fought over water," predicted Ismail Serageldin, the World Bank's vice president for environmental affairs and chairman of the World Water Commission. A recent poll of 200 leading scientists from 50 countries concurs with Serageldin's sense of urgency. All identified the lack of fresh water as an environmental issue second in importance to global climate change.

One-third the world's population already experiences severe water scarcity and another third moderate scarcity. More stark yet, 1 billion people on this planet have no access to clean drinking water and more than 2.9 billion have no access to sanitation services. Consequently a child dies every eight seconds from drinking contaminated water.

Fresh water shortages though are not limited to developing nations. Some of our neighbours immediately south of us are rifling through their own supplies. South Western U.S. states for instance are draining the world's most famous underground body of water, the Ogallala aquifer, 14 times faster than nature can restore it.

As we will discuss later, among other things, aid for developing nations, clear government policy that protects us from bulk water exports sought by our thirsty neighbours and effective water conservation initiatives for our own part must be components of a national approach to our country's life-blood.

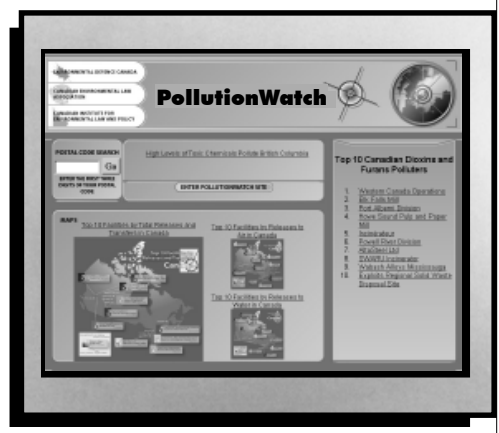
Water abuse

Although water consumption is a serious concern for Canadians, Canada's well-recognized water expert, Marq De Villers will tell you, overall we should be much more concerned with water quality issues than water quantity issues. The work of other leaders in our nation's environmental movement supports this observation. PollutionWatch, a project of Environmental Defence Canada, Canadian Environmental Law Association and Canadian Institute

for Environmental Law and Policy (CIELAP), concluded in June 2003 that pollution of Canada's water, air and land increased more than 20 per cent between 1995 and 2001, although it is worth noting, contaminants emitted to our waterways increased by 37 per cent during the same period.

Of course, if you take into account that releases to air and land eventually make their way into our water sources as well, then the hazards posed for water are more significant yet. Based on Environment Canada's National Pollutant Release Inventory, PollutionWatch reported the following sources of pollution, demonstrating many of Canada's biggest water users are also our biggest water abusers. As we make our way through the PollutionWatch data we will review other related sources of information.

Dumping 7.6 million kilograms of contaminants into the Bow River, the City of Calgary's Bonnybrook Wastewater Treatment Plant was found by PollutionWatch to be the largest water polluter in Canada. This said, 14 other **municipal sewage treatment plants** joined the Calgary plant as the country's 15 largest water polluters.



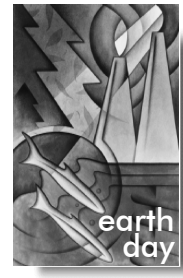
Every year over one trillion litres of untreated sewage are dumped into our waterways. Again acting as our interpreters Barlow and Clarke estimate, "This volume would cover the entire 7,800-kilometre length of the Trans-Canada Highway to a depth of 20 metres — six stories high."

The Sierra Legal Defense Fund further explains this "particularly disturbing when you consider what sewage really is — a foul mix of water, human excrement, grease, motor oil, paint thinner, antifreeze and many kinds of toxic industrial and household waste."

Also consider although water treatment removes fecal coliform bacteria, it does not remove adequately the toxic chemicals in wastewater. In July 2001 the Quebec Environment Ministry judged treated water once returned to our lakes and rivers as still "acutely toxic."

The Ontario government's Nanitcoke **coal-fired electricity** generating station proved to be Canada's largest air polluter. The PollutionWatch report documented Nanticoke air emissions at almost seven million kilograms of mostly lung-irritating, acid-rain causing contaminants. Whether it falls to earth as rain, snow or fog, acid rain harms trees, crops and fish. Winds can also blow air pollution for hundreds of kilometres causing the pollution from one place to fall as acid rain in another place — another place like your local lake, river or stream.

In addition, among other chemicals, Nanitcoke also released 226 kilograms of mercury. Coal-fired electric power plants comprise the single largest source of mercury emissions in the United States. Only a minute amount of mercury can contaminant a lake



and kill all aquatic life living there. (It is estimated one gram, less than a teaspoon, would be enough to contaminate an eight-hectare lake.) The few grams of mercury found in a home thermometer are enough to poison a child.

Mercury in our water accounts for the abundance of North American fish consumption advisories. Children, women of child-bearing age, pregnant women, and nursing mothers in particular must limit or avoid fish altogether. The human central nervous system is very sensitive to mercury. Exposure to high concentrations of mercury can permanently damage the human brain, kidneys and developing fetus. Effects on the brain include memory loss, blurred vision, irritability, shyness and tremors. Mercury is also a known animal carcinogen and possible human carcinogen.

The PollutionWatch report went on among other things to name a **hazardous waste facility** near Sarnia, Ontario as both the country's largest polluter of cancer-causing substances and substances that interfere with human reproductive outcomes and child development. The carcinogens — lead and nickel — were mostly sent to landfill. Meantime, the pollution causing 'birth defects' — including cadmium and arsenic — went to landfill or was incinerated and released into the air. While not singled out in this report, nonetheless, the City of Toronto's air pollution from toxic sludge incineration has been calculated as equalling an extra 30,000 cars on city streets each day.

Earlier in 2003, CIELAP reported a 35 per cent overall increase in the generation of hazardous waste in Ontario between 1994 and 2000. During this same period there was 105 per cent increase in the amount of hazardous waste Ontario communities received from the United States for disposal, incineration or treatment, including treatment at local water pollution control plants.

As significant as the PollutionWatch report is, it is important to note it does not give us a complete picture. The NPRI data from which it was derived has many limitations. The **NPRI system** only covers polluting releases or transfers from industrial-type facilities; so for instance, it does not cover runoff from agricultural operations. Its inventory does not include all hazardous substances in use; so for instance, it does not require users of hazardous substances like thallium or PCBs to report releases and transfers. Nor does it require reports from facilities employing less than 10 people, using the substance at concentrations less than one per cent by weight, or using less than 10,000 kilograms of the substance a year. And these are just the general exceptions. For each of these categories there are still greater exceptions.

Drinking water safety

Unsafe drinking water – water laced with E. coli bacterium – took the lives of seven and harmed the health of another 2,300 Walkerton, Ontario residents in May 2000. This tragedy and another like it in North Battleford, Saskatchewan prompted many to re-examine the quality of our drinking water. Still, others defend the status quo. In October 2002, Ontario's Minister of Environment made the claim, "Ontario has and enforces the best and toughest clean water policies in the world."

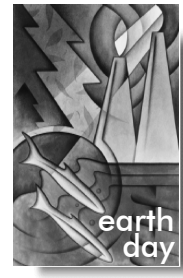
Responding to this claim CIELAP again did their homework comparing Ontario standards and guidelines with those of the Canadian government, the United States Environmental Protection Agency and the World Health Organization. For more than half of the chemical limits examined, Ontario provisions either did not exist (In other words, there were no limits to the specific toxin.) or they had higher maximum levels than those in other jurisdictions. Of these CIELAP cited Ontario's standard for PCBs to be among the worst — six times higher than the U.S. standard.

This said, the U.S. standard and indeed all **standards for chemicals are questionable**. As author, ecologist and cancer-survivor, Sandra Steingraber writes, "Maximum contaminant levels are not a health-based standard. Instead, they take into consideration cost and the ability of available technology to reduce contaminants to particular levels. These then become the legal benchmark." Steingraber goes on to explain that for many chemicals there are two numbers: the legal level; and the level at which human health is protected. For carcinogens like benzene, vinyl chloride and trichloroethylene the health based level is zero. Further, Steingraber and others concerned for human and ecological health, point out that no legal toxin level takes into account hazardous combinations of chemical exposures.

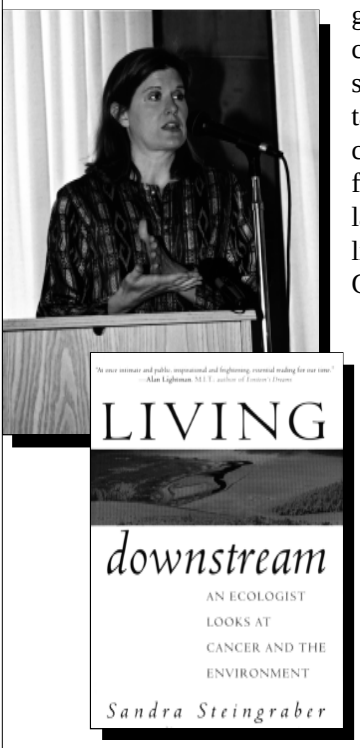
The same water we drink has many other household uses, which when it contains a class of chemicals called volatile organics, they may present an even greater risk to our health. Cooking, humidifiers, dishwashers, washing machines, bathtubs and showers all use heated tap water. Volatile organics are easily absorbed through our skin and lungs when they are heated. A 1996 study found a 10-minute shower or 30-minute bath contributed a greater internal dose of volatile organics than drinking half a gallon of tap water. The study's authors, Clifford Weisel and Wan-Kuen Jo, noted that those who establish drinking water standards never consider these alternative routes of exposure.

Groundwater safety

As noted above, groundwater is an important part of our hydrologic or water cycle. It has been estimated the Earth's groundwater resources exceed our surface water by some 480 times. In Canada, almost nine million people, or over 30 per cent of our population, rely on groundwater for use in their homes. Groundwater often forms the headwaters of important cold-water creeks. It also supports wetlands and bogs and the variety of life that depends on this type of habitat.



And yet, when it comes to groundwater the adage 'out of site out of mind' most certainly applies. The Canadian Geoscience Council concluded current Canadian efforts in groundwater inventory, protection and research are fragmented and inadequate. In other words, we really don't know where our groundwater is and like other water sources, our groundwater is being assaulted from a variety of contaminants. Leaking landfill or industrial disposal sites, leaking gasoline storage sites, leaking septic tanks or dry cleaning solvents are chief among these contaminants. But **decomposing paper sludge** used for sound berms at gun clubs and dumped on farm lands is another problem in Ontario communities like Oshawa, Orillia, Madoc, Aylmer, Niagara, and Guelph. Toxins like E. coli and Polyaromatic Hydrocarbons (PAHs), levels have been found to be more than 4,000 times the provincial limit.



Unlike surface water though, groundwater may stay buried for tens, hundreds or even thousands of years. By comparison, the average turnover time of river water, or the time it takes the water in rivers to completely replace itself is about two weeks. This leaves groundwater especially vulnerable. Stuck below the surface groundwater has no oxygen to accelerate the breakdown of chemical contaminants, nor open air to help evaporate solvents and other volatile organic chemicals.

This vulnerability has lead Sandra Steingraber to observe, "Cultivating an ability to imagine these vast basins beneath us is an imperative need."

Related worker safety

Like standards for hazardous chemicals in our drinking water, hazardous chemicals in workplaces are not health-based. This issue is magnified by the sheer size of the chemical industry. Worldwide some 100,000 chemicals are produced. In the United States alone some 3,000 of these are produced in quantities of at least one million pounds a year.

For more than 85 per cent of chemicals we know little or nothing at all of their long-term effects. For more than half of those we do something about, we amassed this knowledge through **worker suffering**. Research for instance has found 24 substances to be human lung carcinogens. Proof for 23 of these was reached as a result of studies into worker exposures.

The U.S. National Institute of Occupational Health and Safety and the National Institute of Environmental Health Sciences estimate between 20 and 40 per cent of all cancer is related to occupation. Here in Canada the Canadian Cancer Society estimates there were 67,400 cancer deaths in 2003 alone. Thus based on this estimate, between 13,480 and 26,960 workers died that year while simply trying to earn a living. Of course these figures do not reflect those workers who contracted cancer, but survived the disease. Nor do they reflect the number of workers who died as a result of other diseases.

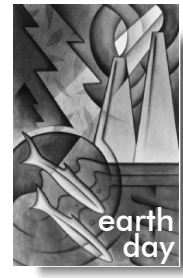
Outside the workplace, our population as a whole is also suffering. In the 1930s one in 10 Canadians contracted cancer. Today, one in three Canadians risks cancer. Similarly, childhood cancer has risen by 25 per cent in the last 25 years. And Health Canada predicts a 70 per cent increase in new cancer cases by the year 2010. This epidemic is surely linked to our ever-increasing body burden of chemicals. A new study into **body burdens** observes, "Scientists have been studying pollutants in air, water and on land for decades. Now they're studying pollution in people and the findings are troubling." Conducted by Mount Sinai School of Medicine in New York, in collaboration with the Environmental Working Group and Commonweal, researchers found 167 chemicals, pollutants and pesticides in the blood and urine of nine adult Americans, who volunteered to submit to these measurements. None work with chemicals on the job and all lead healthy lives. Of these toxins in their bodies almost half have been linked to cancer and birth defects or developmental delays. Others have been linked to similarly serious disease and disorders.

Years ago miners took canaries down into the mine to warn them of the presence of toxic gases. When the canaries stopped singing the miners knew it was time to vacate the mine. Today workers are the canaries for our communities and the waterways streaming throughout them. As we will discuss later taking action in our workplaces will do much to protect us all.

Other water stressors

Misuse of land causes us a host of interrelated problems for our waterways above and below the ground. One area especially at risk to this problem is Southern Ontario's **Oak Ridges Moraine**. The Moraine is a 160 kilometres-long glacial landform of valleys, ridges, hills and streams extending from Rice Lake in the east to the Niagara Escarpment in the west. Sand and gravel in the landform filter and release rainwater into aquifers and watercourses flowing north into Georgian Bay and Lake Simcoe and south into Lake Scugog, Rice Lake and Lake Ontario. Toronto is sprawling into moraine towns from Orangeville to King City, Uxbridge and Oshawa. All this unplanned, unfettered growth will surely pollute the region's only source of groundwater, unless we stop it now.

Sierra Club of Canada predicts in the next 30 years residents of Greater Toronto, Hamilton and Niagara could lose to **suburban sprawl** an area of farm and forestland nearly twice the size of the existing city of Toronto. Already more than 19 per cent of Ontario's best farmland has been lost. Throughout Canada depending on the region 65 to 80 per cent of wetlands have been similarly lost. Every year Canada also loses over one million hectres of forest – a hectre every three seconds – to logging. Wetlands and forests help control soil erosion and flooding, they absorb pollutants before they run off into waterways and they are home to many species including many endangered species.



The subdivisions that replace these natural areas increase the amount of paved surfaces. As the amount of impervious surface

area increases, water runoff from precipitation occurs at a much faster rate than if it had a chance to soak through the ground and recharge our water table. Urban runoff can contain pollutants such as nutrients, pathogens, industrial and automotive chemicals, oils and pesticides. Hard surfaces also promote stormwater overtaking the capacity of our sewer systems thus sending untreated sewage directly into our waterways. A recent study has also found these surfaces are also sending our fresh water out to salty seas at an alarming rate, rather than retaining it in our groundwater or continental, fresh water basins.

Finally, it is important to remember, with mismanaged suburban growth also comes roads, increased transportation, fossil fuel consumption and additional sources of pollution like acid rain and greenhouse gases, the primary cause of global warming. **Global warming** is caused by the mining, refining and use or burning fossil fuels like coal, oil and natural gas to power our factories, homes and most recently transportation vehicles. When we 'use' fossil fuels we release carbon dioxide into our atmosphere, one of the most common greenhouse gases. We call them 'greenhouse' gases because they contribute to the greenhouse effect over our earth's atmosphere.

Of course the consequences of global warming are many, but those related to fresh water are perhaps most gripping. As Earth surface temperatures rise, fresh water levels will lower. Among other things, this will also only serve to concentrate toxins already present in the water.

In Canada, global warming also alters the healthy tension between water in its various states. Snow and glaciers are melting unseasonably and evaporating all too quickly to sustain fresh water supplies. **Alberta's Bow River** for instance is fed by a glacier melting so quickly that in 50 years there will be no water left in the river but for the occasional flash flood.

Some scientists say global warming is the single largest cause of fresh water shortages in the world. By the year 2050 it is predicted another 66 million will be living in water-stressed countries and 170 million more in severely water-stressed countries as a result of global warming.

False solutions

Some responses to water issues, especially drinking water issues have been inadequate at best. Most Canadian municipalities 'purify' their drinking water with chlorine, considered the cheapest method available. Residents though are paying dearly for this option. Over the past two decades, nearly two-dozen studies have documented the **link between chlorination of drinking water and a variety of cancers**. By-products of the chlorination process also belong to the class of chemicals called volatile organic compounds, which as we learned earlier are more easily and absorbed through our skin and lungs when heated.

No one need trade their health for water treatment though. Granular activated charcoal filters, artificial membrane filters, water

ozonation, water aeration and UV light can all be used in various combinations. Then combine these in turn with properly regulated, smaller animal farms (In Quebec for instance 165 municipalities are reported to no longer allow the expansion of factory hog farms.), compostable toilets wherever possible, plus other methods (which we will discuss later) to get stormwater overflow under control, and we will have all but eliminated the need for chlorine in our drinking water.

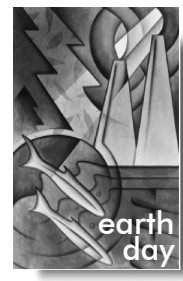
Bottled water is another false solution to our current water concerns. Canadians spend more than $300 million on bottled water every year. Often this is merely repackaged tap water sold at up to 100 times the cost of tap water. But whatever its source bottled water is less regulated than tap water. Depending on its container, cancer-causing or hormone disrupting chemicals may also be leaching from the bottle to the water. Nine out of 10 water bottles — 30 million a day — end up as trash to be burned or buried. Either way this supposed solution to our water ills only serves to heighten them. Throw-away plastic water bottles also drive the use of water-thirsty, water-polluting fossil fuels. It's been calculated that supplying Americans with water bottles for one year consumes more than 1.5 million barrels of oil, enough oil to generate electricity for 250,000 homes for a year, or enough to fuel 100,000 cars for a year. Adding insult to injury, in all but one province — British Columbia, whose licences are only $25,000 annually — water bottlers draw our water at no charge.

The bottled water phenomenon is part of the larger **water for profit** trend initiated by aggressive multinational water companies, who see drinking water and wastewater services as the latest cash cow. For more than a decade Canadian municipalities have been squeezed by a double vice, created by other levels of government downloading costs and services to municipalities and the reluctance of some rather vocal residents to pay fair taxes that support municipal services. At last count 13 municipalities had succumbed to this pressure and entered into "public-private partnerships." Those who oppose water privatization remind us when corporations run water systems their first priority is the bottom line. The usual result is compromised service and increased rates.

Comprehensive vision

The Great Lakes-St. Lawrence River ecosystem is home to 35 million people and an astonishing variety of native plants and animals. It contains 20 per cent of all fresh surface water on Earth. It also helps support approximately 50 per cent of Canada's total economic pursuits. How we interact with this significant water basin then, will profoundly affect Canada's future.

While the lakes have partly recovered from the most harmful poisoning of the 1960s and 1970s, there are new signs of serious — and possibly irreversible — damage. These include: lower water levels; a growing number of communities facing serious questions about access to water including Waterloo, Ontario;



invasive exotic species; an ominous Lake Erie dead zone; hazardous buildup of radioactive contaminants discharged from nuclear power-plants; high levels of polybrominated diphenylethers in Great Lakes salmon and human breast milk; two-thirds of U.S. fish advisories; and rising rates of human illness and disease experienced in many communities around the basin. (Hardly surprising five of North America's six top state or provincial polluters are located in the Great Lakes region.) As such it would seem the Great Lakes are a microcosm for many of the 'water worries' we need to confront.

GREAT LAKES UNITED

Thus when some U.S. Congressional Representatives and Senators from the Great Lakes region began to talk of bills for short- and long-term restoration of the Great Lakes, Great Lakes United (an international coalition of environmental, conservation and labour groups of which the CAW and Workers Health and Safety Centre are members) seized the opportunity to put forward a comprehensive vision for basin-wide restoration and preservation, one that would involve all interested citizen groups and all levels of government from both sides of the border, and one that would do more than just clean contaminated sediment. In fact GLU's vision, embodied in a text called the ***Green Book***, is predicated as much on toxic cleanup as on stopping the flow of toxins in the first place. Many of the following water solutions, or what we call 'water works' are also found in the *Green Book*, available on GLU's web site: www.glu.org.

Water works

As we have seen energy issues are intricately tied to water issues. Green power, power that uses renewable resources and does much less harm to the health of our aquatic ecosystems or the health of workers helping to generate it, comes in many forms. **Acknowledging that solar energy, wind energy and energy from plants or biomass are perhaps some of the most important sources of renewable energy in Canada, the three following emphasize those sources created from water.** The ways in which these technologies harness water is amazing. Equally satisfying is the notion that these technologies somehow transform water to 'heal' itself. That all these technologies also engage workers and create more jobs than traditional sources of energy is perhaps most satisfying of all.

Geothermal energy

Geothermal energy is a non-polluting, natural energy source produced by the internal heat of the Earth. There are five kinds of geothermal energy: hot water; hot dry rocks; magma; compressed hot water aquifers; and ground-source heat. The most common kind in use is from hot water far below the earth's crust. It is brought to the surface as steam or hot water and is used to generate electricity by powering a steam turbine. While geothermal energy is the main energy source for homes and factories in some cities in Iceland, its use elsewhere is limited at the moment. This said, in Canada the City of Moose Jaw has developed a geothermal heating system for a public swimming

pool and recreational facility. Carleton University in Ottawa uses groundwater to heat its buildings. And the Health Centre complex in Sussex, New Brunswick, has been using an aquifer for thermal energy storage since 1995. (Using a similar principle, capitalizing on the Earth's natural systems, the City of Toronto will soon use extremely cold water drawn from deep in Lake Ontario to cool its huge downtown office blocks.)

Future potential for geothermal energy is great. Worldwide, 39 countries could obtain 100 per cent of their electricity from geothermal sources. For instance, in Western Queensland, Australia, they are researching the use of hot rocks three to five kilometres underground. If successful, they will be able to meet all of Australia's energy needs for hundreds of years.

Tidal and wave energy

Energy from tides has been used since the Middle Ages when millers used them to drive the water wheels in their millponds. Water has four times the energy intensity of a good wind site. Consequently, many are experimenting with tides and waves to generate electricity. Some are beyond the experimental stages. In Britain for instance, they are building large stand-alone underwater turbines in areas where are there are strong tidal currents.

Fuel cells

A fuel cell works like a battery, but does not run down or need recharging. It will produce power as long as fuel, hydrogen, is supplied. Hydrogen is the third most abundant element on the earth's surface, where it is found primarily in water and organic compounds. It is generally produced from hydrocarbons or water. When burned as a fuel, or converted to electricity, it joins with oxygen to again form water. As such, it is a clean form of energy.

Hydrogen fuel cells can be used to power buildings and vehicles. They are useful as back ups to solar and wind power. Some hospitals are using them in remote locations. General Electric is selling home units now. Vancouver and Chicago each have three fuel cell buses on the road. The large car manufacturers have sample cars on the road too. Mining companies are also looking to replace diesel-powered equipment with equipment powered by fuel cell technology.

Reducing energy use

While green energy sources are important, we must first work to reduce our energy use. Since the introduction of the **compact fluorescent light bulb** in the early 1980s, efficiencies in lighting have more than tripled. Similar gains have been made in many household appliances, including refrigerators, furnaces, water heaters and ranges. But we can't stop looking for ways to save energy. The way buildings are designed and the way existing buildings are managed can also make a big difference.

Buildings can be designed for instance to take advantage of the sun's warming rays, this is known as **passive solar heating**. Buildings built for passive solar heating usually feature large

south-facing windows, given that the south side of buildings always receive the most sunlight. Materials that absorb and store the sun's heat can be incorporated into the sunlit floors and walls. The floors and walls will then heat up during the day and slowly release heat at night, when the heat is needed most. Surprisingly straw is one of the best materials for use in these situations. Buildings from straw bale construction are reported to use half the energy of buildings from traditional materials and construction methods.

Motivated by the threat of global warming, the City of Toronto and the Toronto Atmospheric Fund (TAF) developed the **Better Buildings Partnership** in 1994, a program designed to improve buildings so they use less energy for heating, cooling, lighting and overall operations. To date, more than 150 private- and public-sector buildings have participated in the program. During this short period of time the partnership has invested more than $60 million in Toronto's economy and created thousands of jobs in the construction trades. And greenhouse gases have been reduced considerably. For instance, improvements to just one building, the Toronto Dominion Centre, reduced carbon dioxide emissions by 35,000 tonnes each year, or an amount equal to what 10 million trees could absorb.

Similarly motivated, TAF worked with others from local and federal government on a green roof demonstration project. Project data based on two demonstration sites and released in 2002 found that **green roofs** (flat roofs specially covered in dirt and vegetation) not only cooled substantially the actual building, but the area around it. The insulating capacity of green roofs realized tremendous energy and greenhouse gas reductions. Further, these green roofs helped manage sewer overflows from stormwater and reduced urban runoff.

The average high-rise building can expect to realize a 25 per cent decrease in their energy bill. Others have pointed to obvious reduced fuel consumption for locally grown rooftop vegetables. In Germany green roof incentives from 80 municipalities have encouraged the creation of over 13 million square metres of green roofs. In Japan and now Chicago laws require green roofs for larger buildings. Chicago estimates green roofs reduce stormwater runoff by 50 per cent. Here in Canada, we have a few high profile buildings like the Toronto's Royal York Hotel and the Vancouver Public Library with green roofs, but no incentives and no laws.

Transportation is also a big user of fossil fuels. As we learned earlier, transportation poses the threat of acid rain. Fuel cell technology and alternative fuels will help address this issue. In the meantime, we must create better efficiencies in transportation by insisting on lighter, more energy efficient vehicles, plus using public transit, railways or shipping whenever possible. Further, if we better planned our communities so that people could live and work in the same communities we would reduce travel distances, reduce fuel usage and the need to pave over green spaces with roads and best yet, we would reduce

toxic runoff, global warming and our impact on the world's water cycle. This kind of community planning is often called **Smart Growth**.

Reducing water use

Given Canada's power stations are our largest users of water, a transition to renewable energy and energy conservation measures will do much to reduce our demand on this overly stressed resource. Still, there is much more that can and must be done.

Worldwide**,** irrigation for crop production claims 65 to 70 per cent of all water used by humans, and yet almost 60 per cent of water intended for irrigation never gets to the crops. Leaking pipes, unlined canals, evaporation from open reservoirs and canals, and poorly directed spraying cause much of this waste. Battling back, astute farmers with the resources are employing **alternative farming practices** including, drip irrigation, low-pressure irrigation methods and probes to measure soil moisture before they even begin to irrigate. They are laser-levelling fields to prevent run off. Hothouse cultivation systems have been designed to recycle evaporation in these closed environments. Israel and Bermuda are even learning to grow with saline water. More practical yet, in some regions farmers are choosing less thirsty plants to better match arid climate conditions.

Developing nations with chronic water shortages are also employing wastewater or **'grey water'** —washwater uncontaminated by fecal matter – for irrigation. Meantime, in Canada the few who are recycling water, are doing so in our homes or industries. They believe the quality of water should be matched to its use. So for instance, Iqaluit residents are reusing the water recovered from kitchen and bathroom taps to flush toilets and wash clothes. Using water recycling technology the Calgary Transit save approximately 2.2 million litres of water by reusing 95 per cent of their wastewater to wash the buses.

Recovering from recent drought conditions North Carolina is working with industries on these issues to great effect. For instance, a survey of metal finishers in the state reported an average 30 per cent reduction in water use, or about 20,000 gallons per day. A case study of one chemical producer who upgraded systems to recycle their water reports $35,000 to $40,000 in savings each year.

Municipal water treatment systems themselves are also ripe for water conservation. Across Canada total municipal water lost to leakage alone amounts to 13 per cent. In response to these and other infrastructure issues Canadian municipalities have been lobbying the federal government for a fairer share of taxes. Meantime, Chicago has set out an ambitious water agenda. (Some of the greatest concerns for groundwater shortages in the Great Lakes basin surround the shoreline of Lake Michigan, upon which Chicago sits.) Key to the conservation part of this agenda is a vigorous program of (leaking) water main replacement, with a goal of 50 miles of new main each year.

Reducing water abuse

Living the three "Rs"

Beyond these efforts many people are also considering what things are made of, how they are made and if we even need to make them. They are keeping before them the simple fact that all production requires water. Further, the harm that leaching landfills and belching incinerators wreak on our waterways is also always before them. In this context the three "Rs" take on new meaning.

As ever they tell us the first "R" — **Reduce** — is the most important — which means, buy less and use less. But this doesn't mean we have to suffer. Rather use only that which we really need. When we reduce our consumption, we reduce our use of the Earth's limited resources and we reduce the use and abuse of water. In his new campaign entitled, "The Nature Challenge," David Suzuki encourages us to take ten steps to save the planet, including eating less meat. While there are many benefits to answering this challenge, including a healthier heart, for every hamburger you don't eat, you save 100 gallons of water.

Next, they tell us to **Reuse**. It's not garbage until you throw it out. Find new and creative uses for old things instead of buying new things. Finally, they say, **Recycle**. Recycling is the re-using of things that would otherwise be thrown away. There are six main groups of recycled products: kitchen waste; fabric; glass; plastic; paper; and metal. Recycling is a way of reusing things and saving the water it takes to replace them. It is also a great way of saving our resources while making money at the same time.

The three "Rs" — big scale

The Canadian Auto Workers and many others view a concept called *Extended Producer Responsibility* (EPR) or *Producer Takeback* as one of the most important means to achieve new, sustainable and clean or 'green' jobs. First legislated as policy in 1991 by a German government facing severe landfill shortages, EPR shifts the burden for recycling products discarded by consumers from the public sector back to the private sector, or rather the original manufacturer. This way, manufacturers are inspired to implement design changes that incorporate effective material and product recycling and reuse. Taken to its logical conclusion EPR would see manufacturers repairing or remanufacturing their products much like the manufacturers of Xerox copiers do. In this system the benefits for all are clear. Resource, energy and water consumption are reduced to a minimum, but worker skill levels are considerably increased. Remanufacturing is not capital intensive, but it is labour intensive.

Two prominent examples of EPR legislation are Europe and Japan's legislation both for electronic and electrical equipment waste and automobiles. Many are asking, "If manufacturers can meet Europe

and Japan's requirements, why not ask them to do the same here in North America?" Unfortunately in North America these kinds of programs are mostly voluntary and thus few and far between. Moreover, in Canada producer product-take back measures are largely limited to proper disposal of hazardous products or litter abatement. Nonetheless, some are optimistic. Last year the CAW launched a campaign to lobby the federal government for EPR laws in Canada.

Selling service not product

Xerox's leasing program makes the remanufacturing of their copiers possible. Customers buy the function copiers provide rather than the copier itself. Xerox retains the ownership. When a copier breaks down Xerox takes responsibility for repairing it or replacing it. When they replace it they take back the copier and remanufacture it for others to use. Thus they meet customer needs using less materials and less water.

Yet another leader using this approach is **Interface**, an international carpet manufacturer, with operations in Belleville, Ontario. Instead of selling wall-to-wall carpeting they sell a flooring service. They provide this service using carpet tiles made from a new product called solenium. Unlike other carpet fibres solenium is fully compostable, made from natural and degradable fibres. This material lasts four times longer than traditional carpets. But when it does wear, usually in the high traffic areas first, because the carpet is also modular, they need only replace the requisit squares and not the whole carpet at once. Between 1993 and 1998 the company also increased employment by 73 per cent.

Of course, it has not been lost on CAW members that cars are increasingly becoming a leased product and as such are very well prime candidates for the 'selling service not product' model that facilitates producer take back or remanufacturing schemes.

Toxic use reduction

Canadian workers won the legislated right to know about specific hazardous substances in the workplace in 1989. But this legislation, known as WHMIS, offers only minimum protection and does nothing to eliminate hazardous substances or stop accidental spills of the kind Ontario's St. Clair River constantly suffers.

To help stem the tide of toxins polluting our water and our bodies some jurisdictions are introducing toxic use reduction laws. The European Union's EPR legislation also covers the phase-out of toxic substances in auto production, including lead, mercury, cadmium and chromium. Closer to home, **Massachusetts** requires companies using toxics to file a plan annually on how they will reduce their use of toxic substances. The state provides support for these companies in the form of training and research into alternative substances. Data accumulated over eight years and reported in 1997 showed companies generated 41 per cent less toxic waste and reduced use of toxic chemicals by 24 per cent. They and the state combined,

also saved $15 million; this without factoring in benefits to environmental and public health.

Here in Canada, municipality upon municipality is passing bylaws to eliminate cosmetic use of pesticides. Like EPR laws these initiatives are also prompting many to ask, if we can accomplish these bylaws in some jurisdictions, why not all jurisdictions? With these laws we can protect both worker and environmental health.

A recent international treaty on **Persistent Organic Pollutants (POPs)** represents another important effort on this front. A product of United Nations negotiations it was adopted in May 2001 at a diplomatic conference held in Stockholm Sweden. This legal instrument aims to phase out and eventually eliminate the 'dirty dozen' of persistent organic pollutants, including endocrine disrupters like PCBs, dioxins and furans and DDT. To their credit representatives of Canada were the first to ratify the Stockholm Convention. With 50 countries now signed on, the treaty will come into force May 17, 2004. While Canada has discontinued many of the pesticides covered by the treaty, the real challenge for us will be to deal with the "unintentionally produced/by-product emissions" like dioxins and furans emitted from processes like incineration of waste. Many have concluded if we are to honour our obligations under POPs we must stop burning our waste.

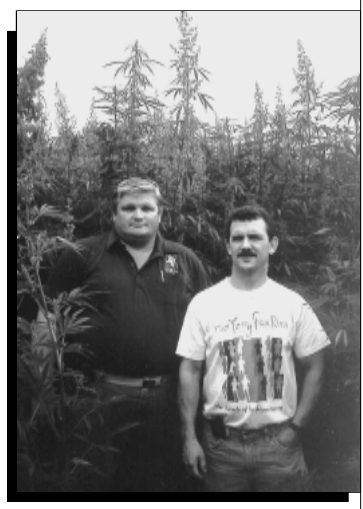
Cleaners and toxins campaign

Cleaning chemicals affecting the health of fish plant workers *and* the marine environment on our west coast first alerted CAW members to the need for safer alternative cleaning products. Since then they have joined forces with the Vancouver-based **Labour Environmental Alliance Society (LEAS)** to produce a handy 24-page *Cleaners and Toxins Guide* and a full-blown campaign. LEAS engages environmentalists by providing them basic research on product Material Safety Data Sheets and then mobilizes workplace health and safety committees to coordinate product changes and monitor future ordering of cleaning products. "Eliminating carcinogenic chemicals from the workplace is the most effective means of cancer prevention," says Mae Burrows, a CAW member and the executive director for LEAS. "It's also the best means of pollution prevention – at the source." For their efforts LEAS won the 2002 Canadian Council of Ministers of the Environment Award.

The carbohydrate economy

Carbohydrates, the building blocks of plant matter, can be converted to cleaner energy sources. But carbohydrates can also be converted to chemicals, textiles and building materials. Of the top 10 polluting chemicals in the automotive industry, all 10 are petroleum-derived. These chemicals are commonly used for

cleaning and degreasing, painting or finishing operations, and as chemical components in adhesives, paints and coatings. **Plant matter-based materials**, such as biochemicals and natural fibres are available for each of these processes. All have several advantages over fossil fuel derivatives, not the least of which is the reduction of worker and community exposures to hazardous substances and of course, the reduction of the greenhouse gases that are ultimately using and evaporating our fresh water. For instance, solvents and degreasers can be derived from citrus fruits, corn alcohol, sugar fermentation and soybean oil. Paint strippers can also be derived from citrus fruits, black liquor a byproduct of paper milling, crystallized wheat starch, walnut hulls and ethanol fermentation.



When it comes to automotive components, natural fibres like flax, hemp and jute are used as interior supports, reinforcing agents for plastics often replacing fibreglass, and carpet backing. Use of these natural fibres also makes the vehicle lighter and thus more energy efficient. Further, Ramie is fast becoming a popular car textile. Considered an excellent replacement for polyester, it is also fireproof.

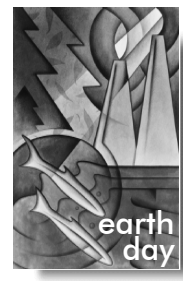
CAW hemp campaign

A diverse carbohydrate economy can also help protect our precious trees, 'water filters' or 'carbon sinks.' For instance, hemp and materials like it, including kenaf, rice-wastes and sugar cane could easily replace trees in the paper making process. Still, many predict hemp will be the **"flagship of the carbohydrate economy."** The hemp plant produces perhaps the strongest and most versatile natural fibre known. Moreover, a crop of hemp requires the application of little or no cancer-causing pesticides. When hemp is farmed the leaves are not taken from the land. As a result, up to 70 per cent of the nutrients are returned to the soil. This decreases the need for chemical fertilizers as well. The hemp paper making process requires no dioxin-producing chlorine bleaches and uses about 80 per cent less sulphur-based acid than traditional paper production. Foods produced from hemp are excellent sources of the essential fatty acids, Omega 3 and Omega 6.

In 1995 CAW environmentalists, recognizing the many benefits of the hemp plant, set out to educate Canadians about the possibilities for hemp farming in Canada. For instance, Ontario's tobacco farms are ideally suited to grow hemp. In years that followed, the CAW launched a formal campaign that played a big role in the re-legalization of hemp cultivation in our country. Since then, the CAW continues to educate Canadians about the many virtues of this wonderful plant. Its potential for environmentally sustainable, clean jobs is clear to all who listen.

Clean car campaign

Related to the push for big time recycling and the hemp campaign is a campaign to transform the motor vehicle industry by lobbying for a clean car standard that addresses fuel efficiency, tail pipe emissions, clean manufacturing, reuse and recyclibility. Included in this drive is the goal to eliminate mercury in vehicles. Vehicles



are a major source of mercury pollution. Ninety-nine per cent of the mercury used in cars can be found in hood and trunk light switches. Meantime, the 12 million vehicles disposed of in the U.S. and Canada each year contain an estimated 8.8 to 10.2 metric tons of mercury.

To help heighten awareness of this issue environmental groups like Great Lakes United have started a program to replace mercury switches in fleet vehicles. The CAW also provides a list of vehicles containing mercury, their make, model and mercury uses. Recently the CAW negotiated with the big three automakers — GM, Chrysler and Ford — to eliminate mercury switches for convenience lighting in all new cars.

What more can governments do?

Responding to citizen demands in the aftermath of Ontario's Walkerton tragedy, the Ontario government developed and passed legislation between 2001 and 2003 to help manage animal wastes from farms. In February 2004 the Ontario government released its *White Paper* setting out a framework for source water protection. In it they talked about strengthening the rules surrounding water-taking permits and requiring water bottling companies and other permit holders to pay for the water they take. While these discussions take place, Ontario has issued a moratorium on new water taking permits. These steps certainly show promise, but there is so much more we need governments to do to protect the health of waterways, workers and citizens.

As described above laws that promote the likes of green roofs, dematerialization and detoxification and alternatives to the carbon- or petroleum-based economy will certainly help us on our way. Investment in proper municipal water treatment infrastructure will also go some way towards our goal. But to restore and protect water at a level that will sustain healthy workers and communities we will require a multi-level and multifaceted approach. A brief (although hardly exhaustive) list of other necessary interventions includes the following:

- Tougher drinking water standards, standards that virtually eliminate chlorine in our drinking water
- Stronger conservation laws to protect our natural heritage sites like the Oak Ridges Moraine
- Tough new source water protection laws
- Once standards are in place, vigilant monitoring of our waterways and enforcement of the new standards
- Provisions to ensure public ownership and operation of water and wastewater treatment facilities
- Requirements for all official plans of regional and municipal governments to include measurable objectives for water and air quality improvements
- Establishment of an equivalent to the U.S. Superfunds for toxic cleanup, based on the premise of the polluter pays

- Funding for continued research and demonstration of non-incineration deconstruction technologies (Although David Suzuki touts a portable system which would deal today with the likes of the Sydney Tar Ponds.)
- Implementation of stronger zoning regulations to limit suburban sprawl
- Requirements for all official plans to prohibit development, including golf courses, within 100 metres of all river, stream and creek banks
- A Sustainable Forestry Act requiring Forest Stewardship Council certification as a condition of all timber operations
- Laws requiring all newprint to contain at least 50 per cent recycled content
- Sustainable funding for public transit systems
- Energy- and water-efficiency standards for factories, buildings, vehicles and appliances
- Waste plans for every building to ensure reuse and recycling of all materials
- Investment research to reduce waste and toxins
- Implementation of environmental product declarations, including material and toxin usage, energy and product performance, production processes, packaging details, how it was distributed and degree of reuse and recyclibility
- Established timetables for the phase out of fossil fuels, in particular coal
- Shifts in subsidies for fossil fuel production to investments in green energy production
- Ecological tax reform
- Government purchase of environmentally friendly products, services and energy
- Support for workers and their communities affected by the transition to cleaner production
- Renegotiated trade deals to recognize water as a basic human right of all people
- Bans on inter-basin and intra-basin transfers of surface water
- Establish an international fund to help poorer countries develop green economies and meet every citizen's human right to clean drinking water and proper sanitation.

While space does not permit elaboration of all these strategies, one deserves further exploration.

Just Transition

Costs associated with the transition to a new economy that protects us all, must not rest solely on the backs of workers or their communities who just happen to be employed in polluting industries. When the gasoline additive tetraethyl lead was banned in Canada for instance, there wasn't a living, breathing human being who said this wasn't best for our environment and our health, particularly the health of children. But in the process 2,000 Sarnia-area petrochemical workers paid a heavy price as a direct result of the ban. More than a decade later only 25 per cent of them have jobs with equal or higher salaries — 37 per cent are still unemployed.

To help address situations like these, the CAW and others have developed policies supporting transition measures to help protect workers who face major industrial change and restructuring initiated in the name of sustainability and environmental protection. It includes elements like retraining, income security and re-employment in alternative industries and ventures. This kind of worker transition has come to be called 'just' or 'fair' transition.

How can you help?

So far we have talked about the many ways we as a society can protect our water and ourselves. To get involved in some of these activities you may have to wait until you graduate from high school or enter the workforce, but there are many things that you and your family can do as individuals to help right now in your community, schools and homes. In your community there are many environmental groups worthy of your involvement or the involvement of your family. (Some of these groups are listed in our web links at the end of our booklet. Some are also interested in helping with school or youth environmental activism.) CAW members and Workers Centre representatives have long worked with a number of these groups because we understand it will take many hands to make this world a better place.

Creating community connections

In one community though, Windsor, CAW members decided we wanted to be more than members or partners of an environmental group, rather we wanted to form it, or be it. Significantly, we decided to establish ourselves as a 'chapter' for one of the most effective groups championing water issues in North America, indeed the world. This group calls themselves the **Waterkeeper Alliance**.

Now 114 Keepers strong, the Waterkeeper Alliance began in the 1960s with a group of commercial fisherman on New York's Hudson River, whose livelihoods were jeopardized by the effects of pollution. Robert Kennedy Jr., chief lawyer for the Hudson Riverkeepers and President of the Waterkeeper Alliance remembers how the night of their first meeting went from talk of breaking the law (because of frustration with the polluters) to enforcing it. Such was the birth of a unique citizen-based organization dedicated to patrolling our waterways, sleuthing out polluters and making polluters pay. When the polluter refuses to pay, they take them to court. To date, the Hudson Riverkeepers have won 158 lawsuits. More important, fish and people are once again swimming in the lower Hudson River.

Still reeling from health scientists' revelations that toxins may have been responsible for more than 1,000 excess deaths and 40,000 excess hospitalizations between 1986 and 1992 in the Windsor area, CAW Locals 444 and 200 co-sponsored a public event in fall 2002 featuring Robert Kennedy Jr. as their keynote speaker. Some 1,000 people, politicians and employer representatives included, filled Windsor's Caboto Club to hear what Kennedy had to say.

At the heart of Kennedy's message are arguments for the environment as a basic human right and what some refer to as full-costing accounting. Waterways are our "commons," he explains. How we deal with them is "one of the best measures of our democracy." Thriving democracies do not allow the few, however powerful, to usurp the rights or natural heritage of the majority, he says.

Kennedy explains further: "Pollution is a subsidy. You show me a polluter and I'll show you a fat cat trying to escape the discipline of the free market, expecting communities and workers to bear the costs of production." If all companies had to take responsibility for the toxins they use and their subsequent damage then you would see an economy highly motivated to design toxins out of processes and products, says Kennedy.

Kennedy goes on to recite the litany of disease and disorders in Windsor. **"What does it matter if you are getting $28 an hour when you have a brain tumour?** … How do we build community? How do we avoid the seduction of the notion that we can advance ourselves as a people by leaving our poor brothers and sisters behind us, by ignoring our obligation to the future, by liquidating our planet for short-term cash? They (CAW) understand the importance of their role. As union leadership they can remind politicians and industrial leadership about the need for long-term investment."

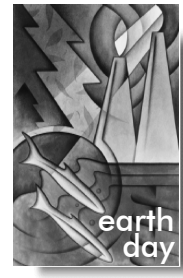
Back in Windsor interest is big. Cloutier reports 40 individuals have already signed on as committed Riverkeeper supporters, among them educators, biologists, lawyers, and youth.

Currently there are other Canadian Waterkeepers on Alberta's Bow River and Lake Ontario. The Lake Ontario Keeper, perhaps most established, has had many successes to its credit, including heightened public awareness of hazards associated with aging sewage systems and radioactive waste. As a result, the federal government and some municipalities have begun to deal with both.

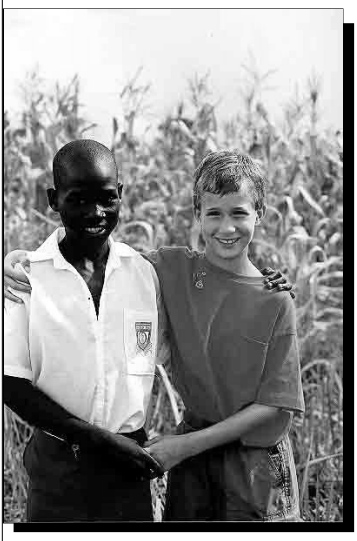
Hands across the ocean

Like the CAW you may also want to form your own organization. Or like Kennedy you realize we cannot 'leave our poor brothers and sisters behind us.' Think you are too young? Think again. Now 12, Ryan Hreljac, has been raising money for the last five years to help with the world's water crisis by providing safe water to poor African communities.

Ryan was inspired by his Grade one teacher's lesson about the lives of African children — lives without access to medicine, food or clean water. The teacher explained it would cost $1 to buy a hot meal for a child, $2 for a blanket, and $70 to build a well. Then just six, Ryan understood the **priority of water**. He went home and asked his parents for $70. They encouraged him to earn it by doing extra household chores. So Ryan set about vacuuming, washing windows and cleaning the garden.



Four months later Ryan went to give his hard-earned $70 to an organization called WaterCan. WaterCan supports water and sanitation projects in developing nations. But the good people at this organization explained it actually took $2,000 to build a well. This didn't scare Ryan off, rather he became more determined. He would just do more chores.



Soon news spread of Ryan's goal. Other people sharing Ryan's concern for our brothers and sisters across the ocean made donations. In July 2000, Ryan travelled to Uganda to see his well and meet the children who, because of him, now enjoyed clean water.

Newly inspired by this experience, Ryan continued his fundraising and in 2001 established Ryan's Well Foundation. The mission of his organization is to fulfill Ryan's dream of securing clean drinking water for all the children and families of Africa. To date with the help of many Ryan has raised $800,000 which in turn has paid for 70 wells.

Students in many schools have helped raised funds for Ryan's Well Foundation. A visit to their web site — **www.ryanswell.ca** — will tell you for instance that St. Michael Catholic High School in Kemptville, Ontario recently raffled prizes and donated the money to Ryan's Well.

You may want to help Ryan's dream. Or you may have one of your own. The important thing to remember is it doesn't have to remain the stuff of dreams. You can make a world of difference. You need only have the courage to try.

From your base camp

Many water conservation and water use solutions employed in workplaces are just as applicable in your home. For instance, the first of 'three R' principles are easily adopted. When asking for or giving presents consider asking for experiences or giving of your own talents. This way you and the environment benefit. More stuff just uses the Earth's limited resources. And stuff cannot build relationships? So, instead of asking for yet another outfit or electronic PlayStation, why not ask for a family outing to your favourite conservation area, museum or theatre? When giving gifts also consider making them from the 'beautiful junk' already on hand, or creating cards with the promise of helping others. Smaller brothers and sisters might appreciate the promise of shared storytelling time. Most moms and dads would enjoy help around the house.

But don't stop here. There are so many things you can do to help.

Water inside your home

- Don't drink bottled water for all the reasons as listed above. Instead, while we work for safer tap water, ask your parents to purchase water filters for all water coming into your home, or at least for your drinking and shower water.
- For homes on well water there is also much you can do to safeguard your water, be sure to check out the web site: **www.wellaware.ca**.
- Toilets are the single largest use of municipally provided water — 30 per cent. The average toilet flush consumes 18 to 20 litres of water. Water efficient toilets use only six litres. So … you got it — ask your parents to install water efficient toilets.
- Additionally, ask your parents to install low-flow showerheads and faucets. This reduces home water consumption by 50 per cent.
- Ask your parents to fix leaky faucets and toilets. One leaky faucet can waste more than 190 litres of water a day. A leaky toilet wastes about 2,800 litres of water a month.
- Don't run the hot water longer than you need. The water heater runs on natural gas, oil or electricity.
- Take a shower instead of a bath. Showers use one-third less water and less energy too.
- Urge your parents to run full loads of laundry.

Water outside your home

- Put a nozzle on the hose so it only runs when you want it to.
- Leave grass clippings on the lawn to help retain moisture.
- Use a rain barrel to save rain water for watering plants.
- Ask your parents to make your home and yard a pesticide-free zone.
- Offer to pull weeds instead of using chemicals on lawns.
- Also plant according to your climate and soil. Less thirsty plants are also advisable.

Your purchase power

- Buy the food and products your neighbours build. Local food and products require less transportation and preservatives to get them to you.
- Ask you parents to buy organically produced foods whenever possible.
- Eat less meat. It takes five to 10 times more energy to produce meat than it does to produce grain that has equivalent food energy.
- Ask your parents to buy cleaning solutions that do not harm the environment.
- Buy products from natural materials and where possible, recycled materials.
- Try not to buy everything you want.
- Try sharing things, rather than buying the same thing for everyone in the family.
- Reduce your paper consumption. Always print on both sides of the paper for instance.
- Buy ozone friendly products.

- Buy rechargeable instead of disposable batteries.
- If you must own a car, ask your parents to ask our governments and companies to make the 'greenest' car possible. They can start by signing on to the Clean Car Campaign. Just go online: **www.cleancarcampaign.org**.

Your transportation decisions

- Ride your bicycle or walk whenever possible.
- Use public transportation.
- Ask your parents to try to live as close as possible to the places you go every day.
- Car pool with friends and family.

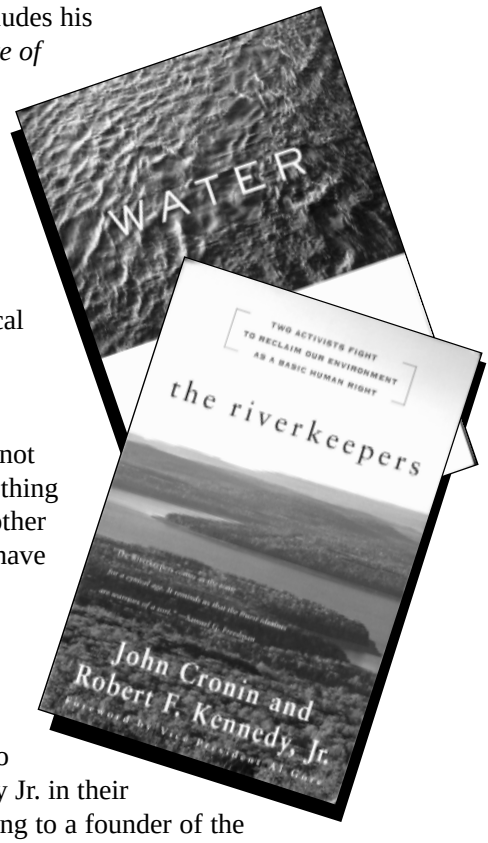
- Stop vehicle idling. If every driver of a light-duty vehicle in Canada avoided idling for just five minutes per day, it would save 1.6 million litres of fuel.
- Tune the car and be sure to check the air in the tires. Properly maintained cars and inflated tires improve gas mileage.

Your home energy decisions

- Always turn off the lights when you leave a room.
- Don't leave the T.V. on if you are not watching.
- Hang your clothes out to dry rather than using the dryer.
- Encourage your family to use storm doors and windows and insulation to make your home energy efficient, including insulation on the hot water pipes and hot water tanks.
- Also encourage your parents to buy energy-efficient appliances, computers and printers for your home. They may cost more initially, but over time they will save money because they use less energy.
- And don't operate any electrical appliances longer than necessary.
- Turn down the thermostat on the furnace. Wear a sweater and slippers instead.
- Use air conditioning only when necessary.
- Plant deciduous trees on the south side of your home to cool the house and reduce the need for air conditioning during warm months.
- Plant coniferous trees on the north and west sides of the house to reduce the impact of cold winter winds and reduce heating demands.

Water: Ours to recover

Taking our planet from a world of water worries to a world of water works will be no easy journey, but as we have seen it is both necessary *and* possible. Marq DeVillers concludes his impressive book entitled, *Water: The fate of our most precious resource* with similar hope. "Water wars might be caused by human folly, but they might still be prevented by human inventiveness," he writes. Noting the 7,500 water desalination plants in operation worldwide, DeVillers also says desalinating seawater is "everyone's best technological hope for solving the looming crisis."



However, while **desalination** may help address issues of water quantity, it does not address issues of water quality. It is one thing to get the salt out of water, but quite another to get the toxins out. And although, we have focused our attention in this booklet on pollution of our fresh water sources, seawater is not immune from sources of pollution.

Thus for inspiration we may also want to turn to John Cronin and Robert Kennedy Jr. in their book entitled, *The Riverkeepers.* Referring to a founder of the Hudson Riverkeepers they write: "Boyle's faith that the environment can be saved by people who steel themselves to fight one battle at a time for every inch of waterfront, wetland, and riverbottom has borne fruit in the resurrection of the Hudson. The single piece of wisdom most responsible for that miracle is Boyle's notion that the battle to save the planet begins within each of us, and progresses when we each resolve to take responsibility for preserving little bits of it — our backyards, our neighborhoods, our communities, our river valley. After all, our planet is being destroyed piece by piece. It will only be saved in the same fashion."

As worker educators and worker representatives of the CAW and Workers Centre we would add **workplaces** to Boyle's list. Regardless, we agree. If we are ever to reclaim this world and waterways as they were intended, it will take the efforts of all of us, not just some of us. As this booklet has shown you, the way forward includes the creativity and determination of workers, their unions, environmentalists, scientists, companies, governments and you. Further, we hope it has shown you the way forward includes a variety of strategies, not just one. Diversity in our approach is as important as diversity in our ecosystems.

The benefits of a varied approach are as interconnected as our ecosystems as well. When we reduce our use of harmful chemicals we reduce our risk of cancer and other diseases, both at work and home. When we recycle or reuse products we use the Earth's limited resources wisely, saving some for future generations. When we reduce urban sprawl and increase green spaces, we reduce toxic runoff, storm sewer overflows and water loss to our oceans and from our water cycle. When we reduce our energy use or make wiser energy decisions we reduce water use, but we also reduce greenhouse gases and acid rain that also threaten our water, planet and human health. When we reduce water use, very often we also reduce water abuse. Finally, remember when we conserve and preserve water, we safeguard the sheer joys of fishing, swimming, boating and lakeside sunsets.

Every automobile license plate in Ontario reads: "Yours to discover." We would argue that this province's water in fact, the water across our vast nation, is **"Ours to recover." The time to begin is now. The place to begin is right where we stand.**

For greater awareness and action
Look to the World Wide Web

There are many places to find information about our environment and water on the Internet. Just as important, there are many more with information about how you and your family can help improve our planet. The following are just a few places to start. You can find more links on the CAW and Workers Centre sites. In any case, once you have finished reading this booklet, please give it to your family to read. Then go surfing the Net together. Shared experiences are always more fun.

Canadian Auto Workers Union
www.caw.ca

Workers Health and Safety Centre
www.whsc.on.ca

Water links

Council of Canadians — Blue Planet Project
www.blueplanetproject.net
Environment Canada — Water pages
www.ec.gc.ca/water_e.html
Great Lakes United
www.glu.org/
Waterkeeper Alliance
www.waterkeeper.org
Well Aware
www.wellaware.ca

Youth and Eco-education links

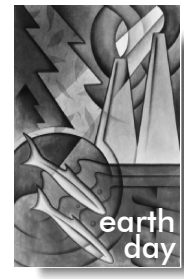
Green Street
www.green-street.ca
Pollution Watch
www.pollutionwatch.org
Ryan's Well Foundation
www.ryanswell.ca
Sacred Balance Portal
www.sacredbalance.com
Youth Action Network
www.youthactionnetwork.org

Other environmental links

David Suzuki Foundation
www.davidsuzuki.org
Greenpeace Canada
www.greenpeace.ca
Sierra Club Canada
www.sierraclub.ca
World Wildlife Fund Canada
www.wwf.ca

Green economics links

Clean Car Campaign
www.cleancarcampaign.org
Clean Production Action
www.cleanproduction.org
Eco-materials Project
www.greeneconomics.net
Institute for Local Self Reliance
www.ilsr.org
Rocky Mountain Institute
www.rmi.org



Program Sponsors

The Canadian Auto Workers Union represents more than 240,000 working women and men in Canada. They build cars, planes, trains and computers, and they work in the fishing industry, hospitals, hotels and restaurants. As worker representatives we are well positioned to help achieve measures necessary for economic sustainability. But we are citizens and parents too. In this capacity we are equally concerned with the education of our children. Moreover, we understand the power that young people possess to change our world if given the opportunity. For our future and your future then, the CAW is committed to delivering our Earth Day program. We should add though, the environment is not the only social justice issue to which our union members have dedicated their working lives. Resolving social ills like abuse of women and children, poverty, and discrimination in its many forms, also figure prominently among our members' efforts.

The Workers Health and Safety Centre is unique among the 14 organizations funded by Ontario's Workplace Safety and Insurance Board. As the system's "training centre" we offer training and information services to workplace representatives in every sector of the economy and every region of the province. All focus on controlling, or better yet eliminating, workplace hazards at their source. When we do so, we go a long way towards protecting both worker and community health. All programs are also delivered using the Centre's participant-centred and 'workers training workers' approach. Consequently, it comes as no surprise that our approach to occupational health and safety has been deemed a model for the whole system. For some 20 years the Workers Centre has also proudly offered health, safety and environmental awareness programs aimed at young workers and students.